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PICTURE THEATRE

FACTS



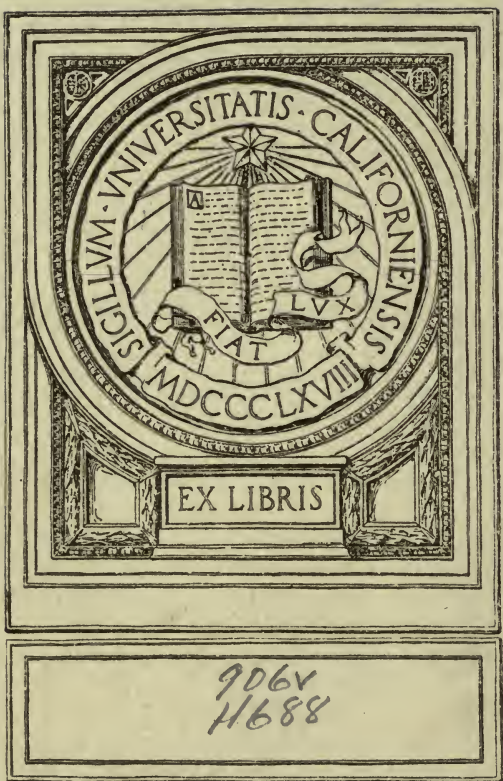
How to Properly Equip and Suc-
cessfully Operate a Motion
Picture Theatre



By

JAMES F. HODGES

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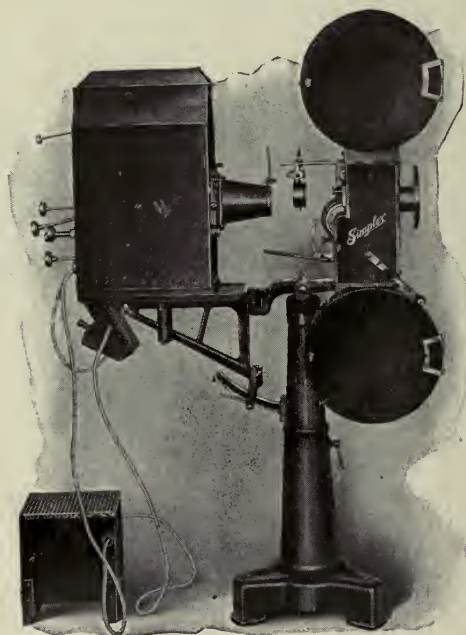
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Do not overlook the following pages, for much information of value will be found therein.

Simplex

Motion Picture Machine

In the Simplex Projector is found material, workmanship, new and original features and fireproof qualities heretofore unheard of in motion picture machine construction. The projection is perfect. The wearing qualities are way ahead of anything else in its line.



Write us to-day for full information and prices. Not how cheap but how good is our policy.

Made by

PRECISION MACHINE CO.

317 East 34th Street, New York

Kindly mention this book when writing advertiser.

POWER'S CAMERAGRAPH No. 6A

PROCLAIMED BY THE PUBLIC

The Modern Motion Picture Machine

Your theatre, to be a success, must possess the most modern and up-to-date equipments. Only the best will bring you return business and prosperity.

Power's Cameragraph superiority has been recognized by the public for fifteen years. It is installed in nearly all the first-class houses in the world, and has made friends and kept them wherever civilization rules. A few of Power's good points are:

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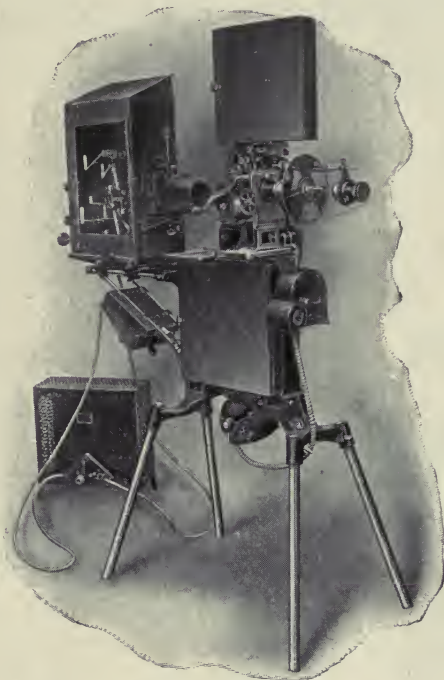
Will carry 100 amp., take carbon $\frac{3}{4}$ " in diameter, 6" lower, 12" upper.

LAMP HOUSE

Larger, more accessible, door each side and better ventilated.

STAND

Made entirely of iron. Lower magazine built in to carry 14" reel.



PROJECTION

POWER'S has brought this to absolute perfection. Pictures clear, steady, without flicker.

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This device (costing only \$10.00 additional) resets the lower loop automatically without stopping, thus doing away with the dark screen and interrupted pictures.

These points explain, in a measure, why more Power's Cameragraphs are sold than all other machines combined. It will put the S. R. O. out in front and keep it there.

Let us send you Catalogue P giving full details.

NICHOLAS POWER COMPANY

90 GOLD STREET, NEW YORK

For fifteen years the leading makers of Motion Picture Machines.

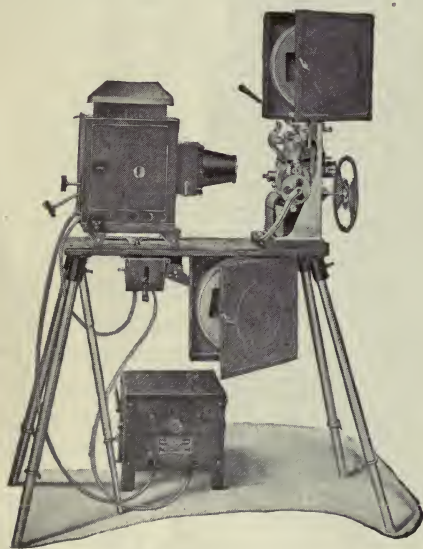
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Don't Spoil the Reels

In establishing and maintaining a successful picture theatre, too much emphasis cannot be laid upon the projecting machine. You may have the finest possible location and the best reels on the market, but if your machine does not project steadily and clearly, you are bound to fail. There must be no nerve-racking flickers and no long waits for repairs. Picture fans know what kind of service they are entitled to expect, and if they cannot get it at your theatre they will get it in some other.

The Edison Kinetoscope UNDERWRITERS' TYPE "B"

Is the only machine that will give absolutely satisfactory service with a minimum of repair cost. *It is the only machine equipped with*



hardened steel shafts and bearings throughout. All other parts are made from materials that have been thoroughly tested. Every feature of the Edison is the result of long and careful experimentation. The Edison combines simplicity with the greatest strength and durability, and it will stand the long, hard daily grind as no other machine can.

A large percentage of Edison Kinetoscopes are sold to exhibitors who have been dissatisfied with other machines. If you want the biggest profit on your investment, start right from the very beginning by getting the Edison.

Price, with Rheostat, 110 volts, 24-40 amperes - \$225.00

Price, with 110 volt, 60 cycle Transformer - - - \$245.00

Write to-day for Catalog 500 and a copy of the Edison Kinetogram

THOMAS A. EDISON, Inc.,

281 Lakeside Ave., Orange, N. J.

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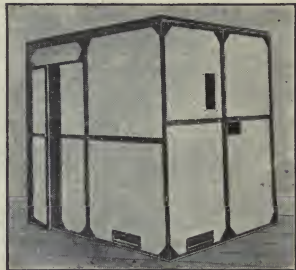
J-M Transite Asbestos Wood Booths

Approved by Fire Underwriters

All types of J-M Transite Asbestos Wood Booths conform to the requirements of the fire insurance authorities and local ordinances. They have been approved by the inspection departments of many states and cities and by the National Board of Fire Underwriters. Composed of that indestructible fibrous mineral—Asbestos—and fireproof cements, these booths are absolutely fireproof. And water will not cause them to warp, shrink or disintegrate.

J-M Booths are made in three styles: Portable, Semi-Portable, and Permanent. We also make booths in special sizes or styles to order, and can deliver promptly.

Write our nearest branch for J-M Theatre Necessities booklet.



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Manufacturers of Asbestos
and Magnesia Products

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ASBESTOS
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Asbestos Roofings, Packings,
Electrical Supplies, Etc.

Albany	Chicago	Detroit	Louisville	New York	San Francisco
Baltimore	Cincinnati	Indianapolis	Milwaukee	Omaha	Seattle
Boston	Cleveland	Kansas City	Minneapolis	Philadelphia	St. Louis
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THE MUTUAL PROGRAM

is composed of the product of the world's best makers, consisting of one, two and three-reel subjects, furnishing exhibitors with

A FEATURE PROGRAM EVERY DAY

The largest theatres in America are using this film service, names and addresses of which will be sent upon application.

More attendance records have been broken with Mutual Films than with any other program in the world.

The releases are nicely balanced, consisting of high class dramatic productions, sensational western and historical-military films and comedies.

Mutual Exchanges cover the entire country. For the address of the nearest to you write to the main offices of the

MUTUAL FILM CORPORATION

60 Wall Street,

New York City

Kindly mention this book when writing advertisers.

Oldest, Largest and most widely circulated Moving Picture Weekly

Founded by J. P. CHALMERS

**MOVING PICTURE
WORLD**

THE FILM INDEX EXHIBITORS' GUIDE

YEARLY SUBSCRIPTIONS.

Domestic	\$3.00
Canada	\$3.50
Foreign	\$4.00

PUBLICATION OFFICE

17 Madison Ave., New York City.

**All the news of every branch of the film
manufacturing and exhibiting industry**

The Representative Moving Picture Paper

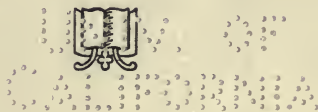
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OPENING AND OPERATING A MOTION PICTURE THEATRE

HOW IT IS DONE
SUCCESSFULLY

James^{by} F. Hodges

PRICE \$1.00



SCENARIO PUBLISHING COMPANY
1465 Broadway, N. Y.
Publishers

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By James F. Hodges.

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P R E F A C E

To-day the Motion Pictures present an opportunity for money-making on a proportionate scale seldom encountered in legitimate business. By this is meant that the returns from the capital invested are likely to be greater than in almost any known safe and conservative business. Of course in establishing such a business there are pitfalls to be avoided and possibilities for bad judgment to be exercised to a disadvantage as in any other business, but the number of such obstacles seem to be less in the moving picture business than in most other businesses.

In this book the writer will seek to show how many of these errors may be avoided at the outset, thus minimizing the chances of business failure as far as possible.

This book is written with the view of giving to the novice in the Motion Picture Business information that will be of service to him in his efforts, and which might require much time and labor on his part to obtain.

It is written not so much to *guide* the man in the business as it is to guide him who *contemplates* engaging in the business. In it is contained much information that will open his eyes at once to important matters at the beginning, so that he may *start* right. After he has embarked in the business, he should be able to paddle his own canoe. Herein is given lists and prices of articles needed, also lists of various concerns whose addresses might be required.

The author writes from personal experience in every branch of the Motion Picture industry. In addition, he has gathered much data for his own personal use, which is contained herein.

Only facts considered pertinent to the equipment and operation of a Picture Theatre have been considered in this volume. Any one wishing technical information on any point is referred to the many standard text-books and publications, among which may be mentioned the following: Operators' Hand Book (Richardson), published by M. P. World, New York; Cyclopedia of Motion Picture Work (Hulfish), published by American Technical Society, Chicago; Motion Pictures, How They Are Made and Worked (Talbot), published by Wm. Heinemann, London, and the following trade papers: The Motion Picture World, New York; La Cinematografia, Turin, Italy; La Vita Cinematografica, Turin, Italy; Cine-Journal, Paris; Erste Internationale Film Zeitung, Berlin; Der Kinematograph, Dusseldorf; The Bioscope; The Kinematograph and Latern Weekly.

The Motion Picture business, being primarily an artistic one, should be governed with an eye for artistic effect. The business is now being hurt, unfortunately, by a lot of ignoramuses, but these will not last. It is conceded by those who are best qualified to predict that the passing of the low class, poorly managed picture house only awaits the advent of more of the clean, healthy element into the business. The public wants pictures, and at present will patronize almost any kind of a place, but this tolerance will soon pass, and the public will insist upon the better type of picture theatre.

SOME STATISTICS.

There are approximately 14,000 picture theatres in the United States, and these give two shows, at least, an evening and seat an average of 500 people for the two performances; thus 7,000,000 people patronize the picture theatres and combination picture and vaudeville theatres each evening. Figuring the admission averaging $7\frac{1}{2}$ cents, which is reasonable, for while the 5c. houses are in the majority, the higher priced theatres accommodate larger audiences, it will be seen that more than \$500,000 is taken in nightly.

This does not take into consideration those houses that are open from 11 A. M. and from 1 P. M. on. This would add considerably to these figures—probably 50%—or about \$300,000,000 per annum.

More than \$50,000,000 is invested in the Motion Picture industry in this country outside of the picture theatres.

Seventy-five to one hundred negative films are made each week and more than 3,000 positives, to supply the demand of the 14,000 picture houses.

LOCATION.

In entering into the Motion Picture exhibition business one must use the utmost caution and foresight in selecting a location, and also in the matter of rent, for those two matters may make or break you, yet they are very simple ones.

It is well also to get a place with a large seating capacity, if possible, for while you may not fill it with seats at the beginning, you are likely to want to increase your number of seats later. Besides, plenty of room is an asset.

The best place to locate a Motion Picture house is, of course, on a street with plenty of traffic, or just around the corner from a busy thoroughfare. Here good judgment and caution will have to be exercised. If the difference in rent is large, the place just around the corner would seem to be the more attractive to a beginner with a limited capital. Other factors too numerous to mention may, however, enter into the situation and decide this very important question of location, but whatever you do, locate on the *right* side of the street *where the traffic is*. *Your house will not be likely to draw much traffic, you must let the traffic draw you.*

Consider well the question of local competition, also the kind of film shown by your opposition. Should you open a house near another one, it is best to adopt different brands of films from those exhibited by your competitor.

ESTIMATING PROBABLE INCOME.

If contemplating opening a theatre in a section wherein already are located one or more theatres, it will be comparatively easy to make a fairly accurate estimate by careful watch and counting the number patronizing the other houses—and then by comparing the traffic in the selected location with the traffic where the other theatres are located.

Should you open in the midst of other theatres, yours must measure up to those in every respect if you expect to take a pro rata part of the patronage.

If you contemplate opening in a location where none has been before, you can safely estimate your patrons by counting the number of persons who

pass other picture houses of like character to the one you contemplate and see what pro rata go inside. Then count the traffic in the locality you are considering, and it is reasonably certain that you will draw a like proportion. Add to that a reasonable percentage for some increased traffic due to your theatre—and an extra patronage which your house will attract by reason of its especial attractiveness and superiority—should such be the case.

In this manner can be estimated the proper expense that can be afforded for establishing and conducting a picture theatre in a given locality that will promise satisfactory profit. All based on the probable income.

MANAGEMENT.

It is a well-known fact in the picture theatre business that the question of management may decide the question of success or failure. Where one manager will fail to so conduct his theatre that the income exceeds the expense sufficiently to make success, another manager will take charge of the theatre, announcing "Change of Management," and will study the situation and see where the fault lies. If there's competition and one theatre is not getting it's share of the business in that particular section, the question naturally arises, Why?

It may be location. It may be lack of attractiveness of the front. It may be the inferior program. It may be operating expense. A shrewd manager opening a new place or taking over an old place, which perhaps has not been paying well, will study the situation thoroughly, taking up point by point.

If the entrance is not inviting and cheerful, make it so. Make it a gloom dispeller. If the program is inferior to your competitor's, improve it. Get a better pianist or singer. Get a better film service. If the location is bad, and a mistake has been made in that respect, offer some special inducement that will especially appeal to the class of patrons you are catering to.

If all these things appear to be as they should be and yet your profit is small, then look to your expenses. By careful pruning, you should be able to overcome the difficulty, unless the whole situation is radically wrong.

A careful manager will occasionally count the number of patrons for a day and see if there is any discrepancy in the receipts. If so, a careful watch will detect the fraud.

A ticket chopper destroys the tickets as they are dropped in at the door, and this is effective, but not infallible. A fair-sized theatre can always afford a ticket chopper, and it is a good investment.

COMPETITION.

In considering competition no point must be overlooked—no matter how small—for collectively the small matters will determine the “quality” of your theatre. Compare the following points with the competing theatre and when you have noted the difference, decide for yourself whether it is necessary to make a change in order to attract your share of the business.

Program.

Film service.

Singer.

Song and slide service.

Music.

Projection and operator.
Attractiveness of front.
Front illumination.
Interior illumination.
Interior decorations.
Comfort of seats.
Aisles (whether crowded or roomy).
Poster service.
Ventilation.
Front decorations.
Ticket seller, courtesy and appearance.
Vaudeville acts.
Whether patrons are pleased or displeased with
the entertainment given.
Cleanliness.
Toilet facilities.

AUDIENCES.

A manager will gain a pretty fair knowledge of the effect of his program upon his business by watching the audience as it passes out. It will not be necessary to ask the patrons what they approve and what they disapprove—*watch and listen*. Comments will be overheard. The patron's attitude also will be a barometer that will tell the manager whether a particular film or class of films pleases or displeases. Some classes of audiences will be pleased with certain classes of films—while other classes of audiences will be displeased with the same films.

The manager must learn the taste of his patrons in this respect.

If a manager cannot influence his exchange to supply just the kind of films he requires, then it may be possible to obtain the desired result by studying the character of films released by differ-

ent manufacturers and then call for the product of this manufacturer and that manufacturer, selecting the style and class that appeals to your particular audience most.

If the film service is to satisfy the manager, it has to be watched constantly by the manager, otherwise the exchange will deliver what is to them most desirable, and this may not be what the audience likes at all.

The manager should note the responsiveness of his patrons in the theatre as well as the attitude and comments of patrons leaving the theatre. It may be a specific picture that pleases most—or it may be a class of picture that always pleases. When these signs are noted the manager should be quick to take advantage of the points learned.

In this way it can be ascertained if it is desirable and profitable to include songs or vaudeville in your program. Watch the effect.

WAITING AUDIENCES.

When your houses are running full and patrons are waiting to enter, it is necessary to run off a performance as speedily as possible and empty the house as much as possible to make room for those waiting. No time, therefore, should be wasted, as the number of tickets sold depends upon the despatch with which you can get patrons in and out again; but do not, under any circumstances, cut the performance to do this, except when you have a special feature program which is advertised as such exclusively.



Attractive Theatre Front.

FILM SERVICE.

Here we get into the meat of the Motion Picture business. It will be necessary to enter into an explanation of the methods of the film supply business in order that you may intelligently understand the very important matter of films.

Films are rented from a "film exchange" at so much per week. The films supplied the exhibitor are termed "film service." This service may consist of 3, 4 or 5 films each day, changed daily, or 3, 4 or 5 films changed every other day, or twice a week.

A film service will consist therefore of, let us say, 3 reels of film per day. Now there are many different classes of film service, governed by the age or newness of the film. Naturally a high class theatre will require a higher class service than an ordinary house or a cheap house. It will be borne in mind that the exchange rents out a given film many times. The same film may be exhibited in 26 different houses in one month. Naturally the house getting it first will pay a larger price than the house getting it the 25th or 50th time. In this way are the prices of services regulated. A film being exhibited for the first time is called "first run" film. When exhibited for the second time it is known as "second run" film, and so on until the 5th or 6th run. After that a record is not generally kept of the run of a film.

The dates of the first appearance of all films are termed "release dates." These dates are published each week in the Motion Picture trade papers, of which there are three—the Moving Picture World, New York, \$3.00 per year; the Moving Picture News, New York, \$2.00 per year, and Motography, Chicago, \$2.00 per year. It will

be an excellent investment for the Motion Picture theatre man to subscribe for these journals, as they contain practically all the current Motion Picture news and also a large store of valuable practical information. By consulting these papers the theatre man can keep himself informed as to the age of any film. You can also get a lot of information regarding films direct from the manufacturers by requesting them to place your name and address on their mailing lists.

A film service is generally made up of films of different ages. One film may be a week old, the next may be three weeks old and the third may be three months old. The *price* you pay for service will determine *what* service you get.

A weekly service of all *first run* pictures (which is rarely used by any but the largest first class places) will cost in the neighborhood of \$300.00 to \$400.00 per week.

A service of *one* first film and two others of varying ages may cost \$75.00 to \$150.00, according to the age of the other two films.

A service of three films that are three or four months old may cost \$20.00 or \$25.00. It is possible to get a film service for even less than this, but it would probably do more harm than good.

The average price paid for film service, however, is about \$40.00 to \$50.00 per week. This will procure three films each day of varying ages, on different days, but all fairly new. The average will be fairly good at this price, for a small house.

This is where it will benefit you to have the trade magazines, for you can keep track of the age of your films by referring to back issues, which you should keep on file.

If your receipts are not large enough to justify

a large price for service, you should learn where you can get the best for your money, but before changing your exchange, give him a chance to do his best for you, for the other fellow may only do better for a while.

For \$60.00 you will be able to get a very good service, and for \$75.00 you will get a service that will do for a first class theatre.

There are two classes of films to choose from—those made by the association manufacturers and those made by the independent manufacturers. The former includes: Biograph, Cines, Edison, Essanay, Lubin, Melies, Pathe, Kalem, Selig, Eclipse and Vitagraph. The latter includes: Ambrosia, American, 101 Bison, Champion, Comet, Eclair, Great Northern, Kay-Bee, Keystone, Broncho, Gaumont, Gem, Imp, Itala, Lux, Nestor, Powers, Reliance, Republic, Rex, Solax, Than-houser, Majestic, Milano, Shamrock and Victor.

The films of the former are handled exclusively by the General Film Exchanges, and the films of the latter are handled exclusively by the independent exchanges, addresses and advertisements of which are to be found elsewhere in this book.

An exhibitor must choose between the two, as your exchange will handle exclusively the output of one or the other. They will be all association films or all independent films. An exhibitor may try one kind and if dissatisfied may change to the other, but it should be remembered that the patron usually comes to like certain brands of films, and it is for the exhibitor to find out which seem to please most, then stick to those as long as his business prospers.

Right here you are going to be let into a secret, the remembering of which may mean a saving of money to you. A favorite trick of some of the

film exchanges is to boost the price of your service and the price of your competitor's service by playing each of you against the other, and persuading you both—one at a time—to adopt a little better service from time to time, to outdo the other. It will be wise to watch this closely and be on the alert to checkmate any such attempt on the part of your exchange man, by having a friendly talk with your competitor, otherwise you are both likely to pass much of your profits over to your exchange unnecessarily in the form of a higher price for service than your receipts will justify.

FEATURE FILMS.

Many of the more advanced picture theatres today show what is known as a feature film production. This differs from the ordinary film in that it will run from 2,000 to 5,000 feet.

A feature film to a picture theatre is what an all-star theatrical production is to a regular theatre. It can be likened to the "star" act on a vaudeville bill. Some houses have a special feature film day—or a feature film week.

These films can be obtained through special-feature film companies or some can be obtained through the regular source of film exchanges.

Among the prominent feature films may be mentioned the "Sarah Bernhardt" film produced and handled by the Famous Players Film Company. Other prominent companies producing and distributing feature films are Warner's Feature Film Company and Union Feature French-American Film Company. Their offices are located in all principal cities.

There appears to be a growing tendency on the part of the manufacturers and exhibitors in Continental Europe to favor the feature film in mo-



Attractive Theatre Front.

tography. The extended run of feature picture plays or special film features are to the liking of the amusement seeking public.

The Europeans were the pioneers in providing this form of Motion Picture entertainment. The time will arrive in this country when the feature film will predominate in every big city in the land. Instead of having a varied programme from day to day, the exhibitors of America soon will follow the example set by their European brethren and will strive to elevate the industry and the entertainment end of the business by having recourse to films that will hold the attention of an audience during the course of an evening. This appears to be a much better system than the present now in vogue. As the matter stands at present, people drift in and drift out and carry away no decided impression of what they have seen. The feature film, on the contrary, makes an impression and causes the Motion Picture patrons to leave the theatre with an impression and a desire to impart to their neighbors and friends the fact that an excellent show is being presented at a certain theatre.

The mere fact that this particular feature film is being shown for an indefinite period will cause others to verify the judgment of those who recommend the exhibition in the first place. One may readily imagine the uplifting result of these long runs. In 75 per cent. of the motion picture theatres of Continental Europe special features are run from six to eight days. As there is a sufficient supply of features to keep the exhibitors supplied the number of special reels supplied by the manufacturers is sufficient to keep the theatres provided with entertainment.

In short, the feature film is destined to take

the place of the ordinary one-reel film, and this will have the effect of raising the standard of the films now being manufactured.

POSTERS.

This is a much abused part of the picture theatre. Some houses overdo it by displaying too many and too glaring posters. Others display too few.

Judgment should be exercised in this matter. The lobby should not be filled with posters. For a high class theatre only two or three are required, and those should be inclosed in neat easel frames. Usually brass frames with glass fronts are used in the better places. A good poster service will cost about \$5.00 per month. The film exchange generally supplies this service, but in the larger cities are to be found concerns that supply posters exclusively. A rebate of 5 cents is generally allowed for the return of posters.

Banners make an attractive display for any special event.

HELP AND SALARIES.

To conduct a Motion Picture show requires the following force:

Machine operator, \$15 to \$24 per week.

Pianist, \$12 to \$20 per week.

Ticket seller, \$6 to \$8 per week.

Ticket taker, \$8 to \$10 per week.

Porter, \$7 to \$10 per week.

Manager (probably yourself).

To this list may be added, if required:

Singer, \$12 to \$25 per week.

Violinist, \$10 to \$20 per week.

Drummer, \$12 to \$15 per week.

Usher, \$3 to \$8 per week.

EXPENSES, RECORDS, RECEIPTS.

A special sheet should be printed to use daily, or better, weekly, for the purpose of keeping track of all business transactions, receipts, expenditures, films used, songs used, etc. By referring to these slips, which should be kept in a loose leaf binder, a manager can tell instantly whether a given song or a film has been used before, also all matters of expense and receipts are readily accessible.

It is a good plan to mark the films that gave special satisfaction, and in this way easily trace the kind that pleases your audiences best.

Both daily and weekly records should be kept of all matters relative to the business.

INCREASE OF ADMISSION PRICES.

If the prices are increased Saturdays and Sundays, a better program should be given, otherwise there is no excuse for such increase.

This should be advertised.

CHECKING RECEIPTS.

All tickets are numbered and the ticket seller accounts for the number that is shown to have been disposed of by subtracting the number of the first one from the last one. Suppose at the closing your lowest number was 2251, this number will of course be the first one sold at the opening next day; then suppose at the closing next night the lowest number remaining is 2951, the number sold then is 700. If two prices prevail, the system is the same for both.

Different colors of tickets should be used on different days and care should be taken to see that

all tickets used are destroyed, otherwise fraud is likely to follow.

Tickets cost 15c. to 20c. per M.

MUSIC.

It is well to have an automatic piano—in case the pianist fails to appear—and also to shorten the pianist's hours. The automatic being used at the beginning and ending of the performance.

SONG SLIDES.

Slide service is 25c. to \$1.00 per week.

A careful manager will always keep on hand a few "cover glasses" for emergency slide purposes, such as quick announcements, etc., etc. Besides having a supply of crow quill pens and waterproof ink, he should have on hand some tracing paper or tracing linen and binding strips such as are used by slide makers. You can write upon the tracing cloth or paper with an ordinary pen and cut it to the size of the slide cover trimmed a trifle smaller. In this way an announcement may be made in one minute. If a typewriter is used to write the announcement on the tracing paper, use a carbon back of the paper so that the letters will be imprinted on both sides. This will give density to the lettering.

SIDE LINE REVENUE.

Advertising on drop curtain.

Advertising slides.

Candy (announced by slides).

Music at ticket window.

LAWS.

A prospective manager must investigate and familiarize himself with all city and state laws and ordinances regulating the Motion Picture theatres.

CONVERTING A STORE INTO A M. P. THEATRE AT SMALL EXPENSE.

After finally selecting the location that appears to offer the best possibilities and after having an inspection made by the building department and the fire department, and having attended to such matters as license, etc., etc., the process will simply be: Obtain a design for the front and remove the entire old front and insert the new one, according to design and specifications.

An ordinary large store with high ceiling, provided it can be made to conform to the building and fire laws as regards exits, etc., can be turned into a first-class Motion Picture house at a reasonable cost. You should have a building inspector pass upon the seating capacity.

It is absolutely essential, after deciding upon your location, to have plans of alterations submitted to the bureau of buildings, which will inspect the premises and pass upon seating capacity, material construction, etc. It is also wise when the purchase of an established Motion Picture business is contemplated to have a thorough inspection made by both building and fire departments to insure a permanent license.

A ticket booth is built facing the sidewalk or one side entrance, and exit doors are built in to suit. The operator's booth is installed inside, above the ticket window, or according to other specification. Sometimes this booth partly pro-

jects outside through the partition. A slanting floor is installed if possible, the walls are decorated, lights and mirroring installed, a screen located at the rear of the hall to conform to the size of the projected picture (which is determined by the distance, usually, different styles of lenses being made to accommodate this), chairs are installed to the number permitted by building inspector and the license. When this is all done, you are ready to put out posters and open the doors for business.

The "front" is simply carpenter and painter work—total minimum cost, \$600.

An Elaborate Theatre.—This cannot be covered here because to build and equip a pretentious theatre will require special care and the assistance of architects, contractors, electricians, etc., to submit plans, estimates, etc.

An elaborate store front theatre can be converted in a very pretentious and attractive manner for an expenditure of from \$2,000 to \$5,000.

In this case the services of special theatre decorators and designers should be secured. Plans and specifications can be obtained at a moderate cost.

FRONT.

The matter of "front" is a very important one. By all means the entrance *must* be inviting and attractive, eliminating the hideous "gingerbread" appearance that is so prevalent among the cheaper theatres. Usually the entire front is taken out and a new one put in, allowing about 10 or 15 feet for an arcade, or lobby, wherein is located the ticket booth and also wherein is placed a couple or more of easel frames to hold the "posters" which advertise the films that are being shown or that are to come. Care should be exercised not to

crowd the lobby. This front may be installed at a cost of \$250 or \$300 up to \$2,000 or \$3,000, according to the elaborateness of the house.

A good suggestion for the arcade is to panel the walls and use green baize covering. This keeps a clean appearance, and also will afford an easy means for pinning announcements on, etc.

SLOPING FLOORS.

A good result is obtained by sloping 1 foot in 8 or 10 feet. The floor can be even at the entrance with the sidewalk and lower than the sidewalk at the screen end of the hall, or may be raised at the entrance, in which case steps will have to be built in, or sloping approaches made, extending from sidewalk well inside of the entrance and exit doors. Chairs when ordered must conform to the slope unless the slope takes the form of steps; in this case each row of chairs will stand upon a level section of the floor.

STAGE.

If a stage is required, it should be built at least 3 feet higher than the floor directly below, and the proscenium arch may be designed to conform to the height and width of the hall. However, a margin of at least one foot at the top and three feet at the sides must be allowed.

The stage should be at least 10 or 12 feet deep.

FRONT LIGHTS.

Two *flaming arcs* are the best for illuminating the front and are connected in series. These of course are extended out over the sidewalk. An electric sign reading "Motion Pictures," "Photo-

play," "Picture House," etc., may also be used to advantage, if desired. The arcade is of course studded with small incandescent lamps, 4 or 8 candle power being sufficient. The flaming arcs will cost \$50 to \$85 each. A sign will cost anywhere from \$75 to \$300. Generally 4 candle power lamps are used in the sign. Tungsten lamps are preferable on account of brilliancy and the saving of current.

INTERIOR LIGHTS.

It is very necessary to success to have the interior of your house fairly well lighted. The business that a poorly lighted house will attract is not the kind that you can build successfully upon. At each exit a red light is placed, or a red sign reading "Exit." This is determined by the fire law.

Enough 8 or 16 c. p. plain incandescent lamps alternated with green or ruby lamps should be placed throughout the house to furnish sufficient light. The plain incandescent lamps that are allowed to remain turned on while the pictures are being shown should be fitted with deep green conical hoods, or shades, to prevent the light from shining direct into your patrons' eyes. You will find that light will tend to eliminate disturbances and will also furnish added interest to your patrons.

Current can be saved by proper installation of low voltage lamps for both interior and exterior use.

In throwing on and off your interior lights during intermission, care should be exercised *not* to throw on all the lights at once, as the conversion from darkness to brilliancy, if effected instantly, is very injurious to the eyesight. It is best to turn

on a few lights first, and a few seconds later throw on all. The switch should be installed to control this.

CHAIR EQUIPMENT.

For a small place 299 chairs are generally installed. This is because in most states the license for houses containing less than 300 seats is much lower than for houses containing over 300 seats. Chairs with folding bottoms are best and cost from \$1.00 each up to \$3.50. It is sometimes possible to purchase second-hand chairs that are entirely satisfactory for much less than the original cost, but when such a purchase is contemplated the chairs should be seen and examined.

Seats should never be located nearer than eight feet to the screen.

PROJECTING EQUIPMENT.

MACHINE.

Your projecting apparatus should be installed in duplicate—to obtain the best service—as it provides a reserve apparatus in case of accident, and also permits of alternate use so that your machine does not become overheated.

For lubricating, light dynamo oil is the best. Keep away from the light, thin oil.

Mutton tallow or beeswax are both good to use on the gearing, with or without graphite.

Clean the intermediate sprockets well *every day* with a toothbrush.

There are several good makes of projecting machines on the market. The five most generally in use are: Powers, Edison, Standard, Simplex, Motiograph.

These machines are all tried and proved. Prices range from \$185 to \$275 complete. Photographs of these machines are shown herein.

CURRENT CONVERTERS, ETC.

Probably one of the most difficult problems that those concerned in the Motion Picture business have to solve is that of the quality, quantity and cost of the machine's light. This not only determines the amount of one of their large necessary expenses, but also to a great extent influences the popularity of their show. The crowd will not continue to patronize a theatre, no matter how swell the "front" or elaborate the fixtures, if they do not see good pictures. And since the quality of the picture depends upon the light as much, if not more, than upon the film itself, the securing of a perfect light at a minimum cost is a problem that has bothered both operator and manager.

Motion Picture lamps require only about 35 to 60 volts at the arc, while most commercial lighting circuits supply a voltage of either 110 or 220 volts. Some device must of necessity, therefore, be used between the line and the lamp to take care of this difference in voltage. Formerly iron-wire or grid resistance rheostats were used. Their use, however, resulted in an actual waste of all the energy supplied from the line over and above that actually required by the lamp. They also generated so much heat that they not only made the operating room like an oven, but were liable to set fire to the films or other inflammable material.

For the sake of safety and economy, therefore, many experiments were made with devices that would reduce the current without needless waste or generation of heat. There are a number of de-

vices now on the market whose manufacturers claim will accomplish these results. Some of these are described.

THE COMPENSARC.

There are two kinds of Compensarcs—one for alternating current only and one for direct current only. They are entirely different in construction and operation, but their purpose is identical and they produce practically the same results.

COMPENSARC FOR CHANGING ALTERNATING CURRENT TO DIRECT CURRENT.

The central stations and lighting companies are gradually changing their direct current circuits to alternating current. The AC to DC compensarc was designed in order to supply the demands of the Motion Picture theatres with a device to operate on alternating current and supply direct current for the motion pictures. This machine consists of an especially designed generator and motor mounted on a cast iron sub-base, and is arranged to operate on an alternating current circuit and supply direct current to the Motion Picture machine. The outfit is constructed for use on 115-220 or 440 volt, single-phase, two-phase or three-phase circuits.

The generator is equipped with a special winding so as to generate approximately 75 to 85 volts, and operate in conjunction with a resistance for use when the arc lamp is operating at 50 to 55 volts and 35 amperes. This outfit is designed to operate at approximately 1750 RPM, and is furnished complete ready for operation.

THE D. C. COMPENSARC.

This machine is designed to be used on 115, 230

or 500 volt direct current lines. It is a two-bearing machine, having two separate magnet frames complete with field windings, and two separate armatures mounted on a common shaft.

This machine is in reality a direct current compensator, that is the output of the set equals the full capacity of both machines less the losses. The electrical connections are similar to those employed in a direct current balancer set.

The frames are equipped with special windings so as to give a volt ampere characteristic curve, such as the current at the arc reduces, the voltage will rise, maintaining stable arc conditions. This result is accomplished without wasteful lamp steadying resistance.

The generator shunt has in circuit a small closed circuit field rheostat. This field rheostat can be adjusted to give different current at the arc ranging from approximately 25 to 45 amperes; the normal full load rating of the set being 35 amperes 55 volts. The motor end has three terminals which in installing are treated the same as the ordinary three connections from a standard shunt wound motor; the middle lead being the lead from the field coils, the two outside leads being the main line leads. The generator end has two main line leads for connecting direct to arc lamp. In addition to this, two smaller leads from the inner bushings are connected direct to a closed circuit rheostat used as above stated for adjusting the current of the arc lamp.

This rheostat is intended to be installed near the operator so the current can be adjusted from time to time for heavy or light films, etc.

The set is so arranged that the mains cannot be short circuited by putting the carbons together and holding them there, in fact, this serves to reduce



An Unusual Front Display—On a Crowded Thoroughfare.
(Good or Bad?)

the amount of energy delivered to the motor below the normal full load energy.

In the case of the 230 volt D.C. Compensarc the amount of energy taken from the line normally will be approximately 2600 watts, as compared with the use of the rheostat, which consumes 8050 watts. This equals a saving of 67.7% in the cost of power.

Some of the special advantages of the D.C. Compensarc over the use of the rheostat:

1. It saves in the cost of power from 65 to 70% on 230 volt circuits and 30 to 35% on 115 volt circuits.

2. The operation is very cool and danger from fire eliminated.

3. The current at the arc can be easily increased or decreased by means of a small adjustable rheostat which can be installed within reach of the operator, giving the operator a means for varying the light to properly meet the requirements of the different qualities of films, whether dark or light, etc.

Each set will require a 2 H.P. no voltage release motor starter and a closed circuit field rheostat.

RECTIFIERS FOR MOTION PICTURE MACHINES.

The General Electric Company has recently developed a special design of mercury arc rectifier for motion picture machine arc lamps.

Every motion picture operator or theatre manager knows that direct current is far better than alternating for operating motion picture lamps, because it delivers a clearer, whiter and steadier light on the screen with a minimum number of amperes in the arc. Even though direct current may be available from the lighting company's

mains, the use of a rheostat or resistance in order to get proper regulation of current in the arc means that there is a large waste of energy; in fact, about 60 per cent. in the rheostat. While alternating current requires a large number of amperes to secure even a reasonably good light, it is possible to regulate the current by means of transformers or choke coils so that the energy wasted is reduced to a minimum. The above stated briefly is that:

Direct current gives the best light at high cost.

Alternating current gives a poorer light at lower cost.

With the introduction of the mercury arc rectifier it is possible to obtain direct current from alternating at a low cost because the regulation is obtained from the alternating side of the rectifier while the current supplied to the arc comes from the direct current side. The mercury arc rectifier is a unique piece of apparatus.

COMPARISON BETWEEN ECONOMIZERS AND MERCURY ARC RECTIFIERS.

The use of the rheostat with the alternating current has practically become obsolete owing to the almost prohibiting current waste of the rheostat. Auto transformers are frequently used with alternating current, and it is found that it requires 2.1 K.W. to obtain 5000 C.P. with any A.C. using auto transformers, while with the Mercury Arc Rectifier 1.7 K.W. is required to obtain the same candle power. This comparison seems to be in favor of the Mercury Arc Rectifier.

This is a difference of 4 K.W.'s per day of 10 hours, or \$.32 per day at \$.08 per K.W.

The above is figured on a basis of 5,000 candle power. It is a well-known fact that frequently

5,000 candle power gives insufficient light for some theatres. It is often necessary to have 7,000 or 8,000 candle power. In such cases the saving by the use of the Mercury Arc Rectifier is considerably greater. As compared with the rheostat (direct current) in this case the saving of current would be about one-third, and the result obtained much more satisfactory.

THE ARC AND CARBONS.

A larger current is required with alternating than with direct current. With direct current 35 to 40 amperes are common, while with alternating current 50 to 60 amperes are common.

Cored carbons are required with alternating current, as they produce the proper arc, while the solid carbon is generally used with the direct current. However, it will be found that the use of cored carbons with direct current is much easier and simpler, requiring less skill on the part of the operator than the solid carbons. The cost of cored carbons, though, is somewhat greater than the solid. A better light results from cored carbons, but they consume faster.

Eighty per cent. (80%) of the light issues from the top (positive) carbon when direct current is used, therefore the carbons must be so set that the crater, at the tip of the upper carbon, is as fully exposed to the condensers as possible. This is to obtain *all* the light possible. When alternating current is used both the upper and lower carbons give off the same amount of light, therefore neither is to be favored in adjustment.

Successful results in projection depend largely upon the correct adjustment of the lamp, which

must throw a brilliantly illuminated circle upon the screen.

THE PRINCIPLES OF OPTICAL PROJECTION.*

Projection is a very important matter and is not generally thoroughly understood by the machine operator. However, the average operator knows enough about it to obtain fairly good results. A bad operator can waste a lot of current and also can show very poor pictures, while a good operator can economize on current and get good results as well.

The projecting machine usually requires 25 to 40 amperes at the arc, of approximately 55 volts. The current in your city may be 110 volts, or 220 volts, and may be alternating or direct. You will of necessity, therefore, use a rheostat, transformer, or other device to reduce the voltage and increase the amperage as required. A rheostat always is included with the projecting machine.

Current economy may be obtained by utilizing in place of the rheostat one of the several devices for reducing the voltage, which regulates the amperage at the arc.

With alternating current economy may also be obtained by this means. These are made by various manufacturers and known variously as "inductors," "economy coils," etc. The compensarc is also used.

It may be well to mention here that some pictures require fast, or slow, running as the case may be to get the best results, while some films should be run fast in some places and slow in other places. This is due to variations in the photog-

*Courtesy of Bausch & Lomb.

raphy. A good operator will know how to gauge his speed to obtain the proper results.

The following brief review of the leading principles of projection is designed for the reader who, having no knowledge of the science of optics, wishes to understand the operation of projection apparatus.

With the aid of the apparatus we throw or project upon a screen an enlarged image of a transparent object (a slide or film).

The process is almost the reverse of ordinary photography. For example, in photographing a scene by means of the photographic objective or lens we obtain a reduced image of that scene on the ground glass. This glass is replaced by the sensitized plate and by the use of chemicals the image is fixed thereon. Now in projection we reverse this process. From the picture made with the lens we make a transparent slide, or we use the film negatives, and by means of a condensed light we strongly illuminate these, and with an objective lens an enlarged image is projected upon the screen, and this screen image corresponds with the real objects first photographed.

From this illustration it will be seen that the first essential in projection work is the lens or objective. Just as in photography the quality and tone of the picture depend to a very great extent upon the quality and character of the lens, so in projection the objective is the factor which determines the excellence of the screen image.

The condensing lenses must be of a diameter slightly greater than the diagonal of the slide or film in use. The size most commonly used is $4\frac{1}{2}$ inches in diameter.

As the condensing lenses are in close proximity to the arc or other source of light, they are, of

course, subjected to considerable heat and will expand and contract accordingly as they are heated or cooled. Some arrangement is, therefore, made for this expansion and contraction so that it will be as even as possible in the ventilated mount, which provides for the circulation of air and ensures the even expansion and contraction of the condensers.

The optical principle of projection for both lantern slide and moving picture apparatus will, perhaps, be more readily understood from the diagram following:

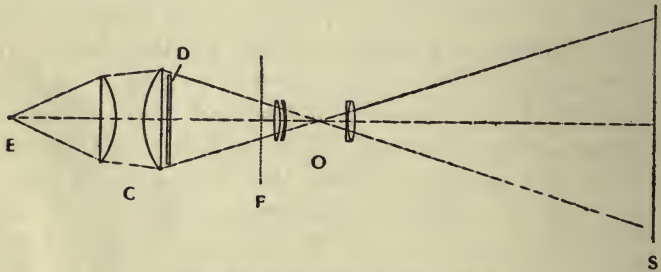


Diagram Showing the Principles of Optical Projection

At *E* is an electric light or other suitable illuminant the light from which is caught up by the condensing lenses or condenser *C*; this condenser is an arrangement of lenses so constructed as firstly, to gather up as great a volume of light as possible, and secondly, to concentrate the light which it gathers at the center or diaphragm plane of the objective when the objective is located at the proper distance from the slide or film, which distance is determined by the focal length of the objective.

The slide or film should be placed at such a point that the entire area of the opening is fully illuminated, and it should also be placed so that the greatest number of light rays possible should pass through it. Taking into consideration the fact

that the opening in the mat in the lantern slide is $2\frac{3}{4} \times 3$ inches and in the motion picture film is $11/16 \times 15/16$ inches, it will at once be evident that the slide must be placed at the point D in the diagram in order that its entire area be covered, and the motion picture film must be located at the point F in order that it may take in the greatest number of light rays.

Proceeding from the slide the light passes through the objective O , where the rays cross and the object is hence reversed, and by means of the objective the object is imaged or delineated upon the screen S . The degree of sharpness and flatness of the image depends upon the optical corrections of the lens.

The relative positions of the arc, condenser, and objective must be such that an image of the light source will be formed at the diaphragm of the objective. All the light coming from the condenser is then utilized and the image on the screen is at its brightest.

Oftentimes lantern slides and films are to be used interchangeably, and approximately the same sized image is desired with both. It is possible to match the size of the images in one dimension only (either width or height) as the two openings are not proportionate in size.

It is necessary, therefore, in ordering to specify whether the images are to be the same height or width.

THE SELECTION OF A LENS.

The most important consideration in projection work is the lens, for on its selection depend the quality and size of the image on the screen. Not the lens mounting, nor even the diameter of the lens itself, but its equivalent focus and distance

from the screen, determine the size of the image.

At a given distance the greater the focal length the smaller will be the image. Shorter focus lenses, therefore, will give large images. Do not make the mistake of selecting lenses of such short focus that the magnification will be so great that when the observer is near the screen much of the definition and perspective will be sacrificed.

Brilliant pictures of medium size are far more satisfactory.

The projection distance must be measured from the film or slide to the screen.

FOCAL LENGTH OF LENS.

The focal length of a lens is the distance from the film, or slide, to a point midway between the two lenses that comprise the objective (projection) lens, when it is in proper focus. In some lens tubes the two lenses are set in the extreme ends of the tube, therefore the focal point would be the center of the tube, but in most motion picture lenses the tube extends two or three inches beyond one of the lenses, hence care will have to be used in locating the center point between the two lenses for calculation purposes.

In determining upon the proper stereo. lens and the proper motion picture lens to use together on the same machine, it will be found that if the same width picture is desired in both instances that the focal length of the stereo. lens is three and one-fifth times the focal length of the motion picture lens, provided the film window is $15/16$ of an inch wide and the slide opening 3 inches. If, however, the height of the picture is considered, the difference will be three and two-thirds times, where the measurements are $3/4$ inch for the film windows and $2\frac{3}{4}$ inches for the slide opening.

The focal length of the projection (objective) lens is determined by the length of throw (distance from film to screen) and the size of projected picture desired. If these measurements are furnished with your order for the machine, the correct lens will be supplied. The focal length of all lenses with which Motion Picture machines are equipped are adjustable by turning a knob, and may be used for slightly different distances.

Usually in ordering a projecting machine these figures are given with the order and proper lens equipment is supplied with the machine. Sometimes, however, a second hand machine may be purchased or a machine will be removed from one theatre to another; this necessitates a change of lenses. The following table will be found useful in such cases.

An easy and sure way for a layman to ascertain the focal length of a lens is to place it in a camera and focus upon any small object of known dimensions. When the image on the ground glass of the camera is the exact size of the object focused then the focal length of the lens is one-fourth of the distance from the object to the ground glass image. If your lens is found to be too long or too short in focal length, exchange it.

The tables following show the size of image obtained with lenses of different focal lengths at varying distances.

TABLE SHOWING SIZE OF SCREEN IMAGE WHEN
MOVING PICTURE FILMS ARE PROJECTED.

Size of Mat opening, 11/16 x 15/16 inch.

Equiv. focus Inches	25 ft.	30 ft.	35 ft.	40 ft.	45 ft.	50 ft.	60 ft.	70 ft.	80 ft.	90 ft.	100 ft.
2 $\frac{1}{8}$	8.0	9.6	11.3	12.9	14.5	16.1					
	11.0	13.2	15.4	17.6	19.8	22.0					
2 $\frac{1}{2}$	6.8	8.2	9.6	10.9	12.3	13.7	16.4				
	9.3	11.2	13.1	14.9	16.8	18.7	22.4				
3	5.7	6.8	8.0	9.1	10.3	11.4	13.7	16.0			
	7.7	9.3	10.9	12.4	14.0	15.6	18.7	21.8			
3 $\frac{1}{2}$	4.9	5.8	6.8	7.8	8.8	9.8	11.7	13.7	15.7		
	6.6	8.0	9.3	10.6	12.0	13.3	16.0	18.7	21.4		
4	4.2	5.1	6.0	6.8	7.7	8.5	10.3	12.0	13.7	15.4	
	5.8	7.0	8.1	9.3	10.5	11.6	14.0	16.3	18.7	21.0	
4 $\frac{1}{2}$		4.5	5.3	6.2	6.8	7.7	9.1	10.6	12.2	13.7	15.4
		6.2	7.2	8.4	9.3	10.5	12.4	14.5	16.6	18.7	21.0
5			4.8	5.4	6.1	6.8	8.2	9.6	10.9	12.3	13.7
			6.5	7.4	8.4	9.3	11.2	13.0	14.9	16.8	18.7
5 $\frac{1}{2}$			4.3	4.9	5.6	6.2	7.4	8.7	9.9	11.2	12.4
			5.9	6.7	7.6	8.4	10.2	11.9	13.6	15.3	17.0
6				4.5	5.1	5.7	6.8	8.0	9.1	10.3	11.4
				6.2	7.0	7.7	9.3	10.9	12.4	14.0	15.6
6 $\frac{1}{2}$					4.7	5.2	6.3	7.3	8.4	9.6	10.6
					6.4	7.1	8.6	10.0	11.4	13.0	14.5
7					4.4	4.9	5.8	6.8	7.8	8.8	9.8
					6.0	6.6	8.0	9.3	10.6	12.0	13.3
7 $\frac{1}{2}$						4.5	5.4	6.4	7.3	8.2	9.1
						6.2	7.4	8.7	10.0	11.2	12.3
8							5.1	6.0	6.8	7.7	8.5
							7.0	8.1	9.3	10.5	11.6

Example: With a lens of 5 $\frac{1}{2}$ inch focus at a distance of 35 ft. the screen image will be 4.3 x 5.9; at 40 ft., 4.9 x 6.7; at 45 ft., 5.6 x 7.6, etc.

TABLE SHOWING SIZE OF SCREEN IMAGE WHEN LANTERN-SLIDES ARE PROJECTED.

Size of Mat opening, $2\frac{1}{4}$ x 3 inches.

Equiv. focus Inches	25 ft.	30 ft.	35 ft.	40 ft.	45 ft.	50 ft.	60 ft.	70 ft.	80 ft.	90 ft.	100 ft.
5	13.5	16.3	19.0								
	14.8	17.8	20.8								
5½	12.3	14.8	17.3	19.8							
	13.4	16.1	18.8	21.6							
6	11.2	13.5	15.8	18.1	20.4						
	12.3	14.8	17.3	19.8	22.3						
6½	10.4	12.5	14.6	16.7	18.8						
	11.3	13.6	15.9	18.2	20.5						
7	9.6	11.6	13.5	15.5	17.5	19.4					
	10.5	12.6	14.8	16.9	19.0	21.2					
7½	8.9	10.8	12.6	14.4	16.3	18.1					
	9.8	11.8	13.8	15.8	17.8	19.8					
8	8.4	10.1	11.8	13.5	15.2	17.0	20.4				
	9.1	11.0	12.9	14.8	16.6	18.5	22.3				
8½	7.9	9.5	11.1	12.7	14.3	16.0	19.2				
	8.6	10.3	12.1	13.9	15.6	17.4	20.9				
9	7.4	8.9	10.5	12.0	13.5	15.1	18.1	21.1			
	8.1	9.8	11.4	13.1	14.8	16.4	19.8	23.1			
9½	7.0	8.5	9.9	11.4	12.8	14.2	17.1	20.0			
	7.6	9.2	10.8	12.4	14.0	15.5	18.7	21.9			
10	6.6	8.0	9.4	10.8	12.2	13.5	16.3	19.0	21.8		
	7.3	8.8	10.3	11.8	13.3	14.8	17.8	20.8	23.8		
12	5.5	6.6	7.8	8.9	10.1	11.2	13.5	15.8	18.1	20.4	
	6.0	7.3	8.5	9.8	11.0	12.3	14.8	17.3	19.8	22.3	
14		5.6	6.6	7.6	8.6	9.6	11.6	13.5	15.5	17.5	19.4
		6.2	7.3	8.3	9.4	10.5	12.6	14.8	16.9	19.0	21.2
16			5.8	6.6	7.5	8.4	10.1	11.8	13.5	15.2	17.0
			6.3	7.3	8.2	9.1	11.0	12.9	14.8	16.6	18.5
18			5.1	5.9	6.6	7.4	8.9	10.5	12.0	13.5	15.1
			5.6	6.4	7.3	8.1	9.8	11.4	13.1	14.8	16.4
20				5.3	6.0	6.6	8.0	9.4	10.8	12.2	13.5
				5.8	6.5	7.3	8.8	10.3	11.8	13.3	14.8
22					5.4	6.0	7.3	8.5	9.8	11.0	12.3
					5.9	6.6	7.9	9.3	10.7	12.0	13.4
24						5.5	6.6	7.8	8.9	10.1	11.2
						6.0	7.3	8.5	9.8	11.0	12.3

Example: With a lens of 10-inch focus at a distance of 20 ft. the screen image will be 5.3 x 5.8; at 25 ft., 6.6 x 7.3; at 30 ft., 8.0 x 8.8; at 50 ft., 13.5 x 14.8, etc.

CONDENSING LENSES.

Condensers are liable to crack from the heat any minute and sometimes fall apart. Sometimes a cracked lens will not show the crack on the screen, especially the back condenser. Should your condenser crack and the crack not appear on the screen, then retain it in use, for it will not crack a second time and therefore will save you the annoyance of suddenly breaking and spoiling a picture, which a new condenser in its place might do at any time.

A short focal length back condenser is more likely to crack than a longer focal length one, for the reason that the arc is brought closer to the short focal length lens than it is to a long focal length lens. At the same time a short focal length lens gives a brighter picture.

To decide what focal length to use to the best advantage is largely a matter of experiment, the following factors being considered: Breakage if too close to the arc; heat given out from arc (this varies with amount of current consumed); brilliance of picture; experience of operator (more skill and attention being required with short focus lens).

The focal length of front and back lens usually vary very little, the front lens being the longer, however, should there be a variance.

The usual focal length of the back condenser is $5\frac{1}{2}$ or 6 inches. That of the front condenser is usually the same or a little longer. If the focal length is shorter the breakage will be greater. If it is longer the picture will be less brilliant.

An operator should always remember that the condensers are a complement to the objective (projection) lens, and vice versa, that the projection lens is a complement to the condensers. Each is

dependent upon the other for perfect projection.

To be matched properly the rays of light must focus at the *focal center* of the projection lens when in focus on the screen. The short focus lens is thicker than a long focus one.

A TEST FOR CONDENSERS.

All condensers should be tried out before using, as sometimes they are seconds, or made of cheap, inferior material.

Trace a figure of some kind on a small piece of tissue paper—a cigarette paper will do. Moisten and stick this on the flat side of the back condenser (with the lines next to the glass), then focus this onto the screen. If it is sharp and clear the condensers are all right. If blurred in some places the condensers are lacking in quality.

PROJECTION OF LANTERN SLIDES WITH SAVING OF CURRENT AND LESS BREAKAGE.

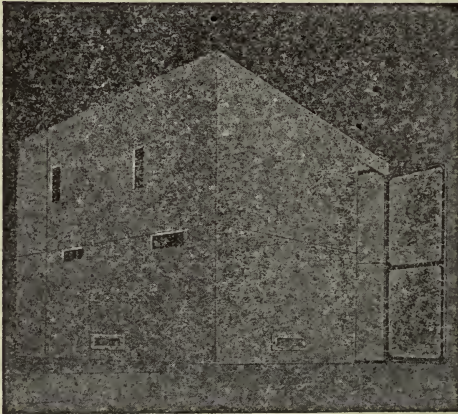
It is found profitable to install two rheostats (direct current) so wired that one may be used when a motion picture is being projected upon the screen and both when an announcement or song slide is being projected. This will cut the current about one-half, as it is not necessary to have as intense light for stereopticon work as for motion picture work.

This is done by the installation of a shunting or short circuiting switch which will control the second rheostat, allowing the current to pass through it if the stereopticon light is desired, and to pass around it, using only one rheostat, while the motion picture is being projected.

BOOTHS.

In practically every State the law requires that the projecting machine be enclosed in a fireproof booth.

The highly inflammable celluloid film used in moving picture machines is a source of great danger from fire. Fire insurance companies accordingly not only make high rates on buildings in which these machines are used, but in some sections actually prohibit their use except when enclosed in a fireproof booth.



Permanent Asbestos Booth for
Two Machines.

In spite of all precautions and safety appliances, these inflammable films are in constant danger of becoming ignited by the intense hot rays of the projecting lamp, or hot rheostat. And this risk is greatly increased by carelessness in the use of cigars, matches, etc., in the vicinity of exposed films.

A burning film is practically unquenchable by water or by any known chemicals. The fire is

apart with more difficulty and requires as much labor to put it together again as was necessary in the first place.

The permanent and semi-portable booths are furnished regularly in the following sizes:

For one machine, 6 ft. wide x 8 ft. deep x 7 ft. high.

For two machines, 9 ft. wide x 8 ft. deep x 7 ft. high.

The asbestos booth costs about \$125. The wire connection must of course be looked after by an efficient electrician, as a strong current is used for the projection machine which necessitates a No. 6 or No. 8 cable.

SCREEN.

About the best and most economical screen that can be used is a plain white plastered wall, calsomined. Canvas screens coated with aluminum paint, or with one of several other preparations on the market, are also much used.

Over a white wall a sheet of thin muslin may be stretched. Have as few and small seams as possible. Seams should run horizontally. It is possible to obtain muslin 8 feet wide for this purpose.

There are several patented screens on the market, all costing good money, yet not seeming to do very much good for the exhibitor unless he has close competition and wants something special to advertise. The best of these seem to be the "concaved" screen and the "mirror" screen. The latter can sometimes be used to advantage in a long, deep, narrow house where no one will view it from the side. The mirror screen is a large mirror ground on its face, and exhibits a brilliant picture straight ahead, but from a wide

angle the picture appears dim, or cloudy. Hence its best results in a long, narrow house. The concaved screen brings out the detail of the edges of the picture very much more plainly than the ordinary flat screen and is not a bad idea. It is, as its name implies, concaved.

APPROXIMATE ESTIMATE OF OPERATING A SMALL MOVING PICTURE THEATRE PER WEEK.

Service (film) ..	\$25.00 to \$40.00	\$50.00	\$60.00 to \$75.00
Posters	1.00	1.00	1.00
Operator	15.00	18.00	21.00 to 24.00
Ticket seller...	6.00	6.00	6.00
Doorman	8.00	9.00	10.00
Pianist	12.00	15.00	18.00
Light & power.	20.00	25.00	30.00
Extras	5.00	7.50	10.00
Heat	5.00	7.50	7.50
Janitor	9.00	9.00	10.00
	<u>\$106.00</u>	<u>\$121.00</u>	<u>\$173.00</u>
Rent
			<u>\$188.50</u>

RECEIPTS AND EXPENSES.

(From a Going Theatre.)

Rent	\$40.00	Singer	\$18.00
Films (3).....	50.00	License	4.00
Pianist	15.00	Operator	18.00
Violinist	10.00	Porter	4.00
Doorman	5.00	Drummer	12.00
Usher	3.00	Miscellaneous	10.00
Current	18.00	Slides	2.00
Ticket Seller.....	5.00		
Total			<u>\$214.00</u>

Seating capacity, 300.

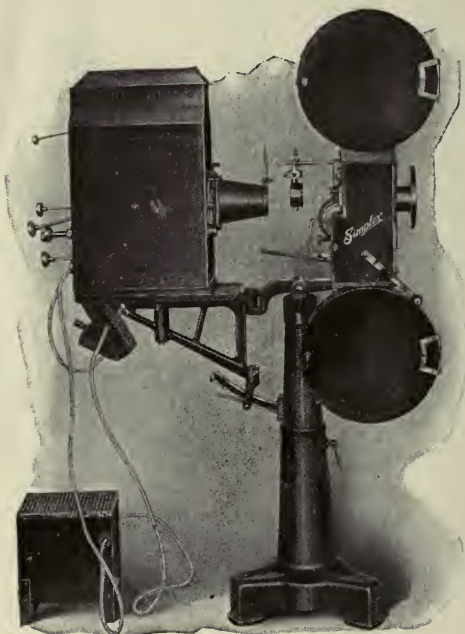
Seating capacity, 300. Receipts average \$40.00 per night (4 performances only), and \$100 Sundays (9 performances).

Do not overlook the following pages, for much information of value will be found therein.

Simplex

Motion Picture Machine

In the Simplex Projector is found material, workmanship, new and original features and fireproof qualities heretofore unheard of in motion picture machine construction. The projection is perfect. The wearing qualities are way ahead of anything else in its line.



Write us to-day for full information and prices. Not how cheap but how good is our policy.

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PRECISION MACHINE CO.

317 East 34th Street, New York

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PROCLAIMED BY THE PUBLIC

The Modern Motion Picture Machine

Your theatre, to be a success, must possess the most modern and up-to-date equipments. Only the best will bring you return business and prosperity.

Power's Cameragraph superiority has been recognized by the public for fifteen years. It is installed in nearly all the first-class houses in the world, and has made friends and kept them wherever civilization rules. A few of Power's good points are:

ARC LAMP

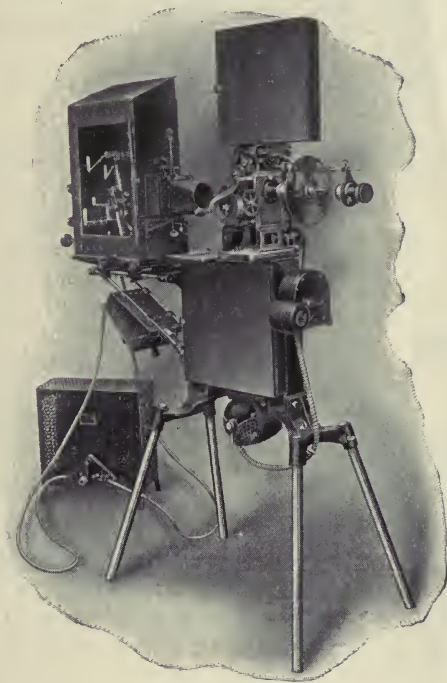
Will carry 100 amp., take carbon $\frac{3}{4}$ " in diameter, 6" lower, 12" upper.

LAMP HOUSE

Larger, more accessible, door each side and better ventilated.

STAND

Made entirely of iron. Lower magazine built in to carry 14" reel.



PROJECTION

POWER'S has brought this to absolute perfection. Pictures clear, steady, without flicker.

AUTOMATIC LOOP SETTER

This device (costing only \$10.00 additional) resets the lower loop automatically without stopping, thus doing away with the dark screen and interrupted pictures.

These points explain, in a measure, why more Power's Cameragraphs are sold than all other machines combined. It will put the S. R. O. out in front and keep it there.

Let us send you Catalogue P giving full details.

NICHOLAS POWER COMPANY

90 GOLD STREET, NEW YORK

For fifteen years the leading makers of Motion Picture Machines.

Kindly mention this book when writing advertisers.

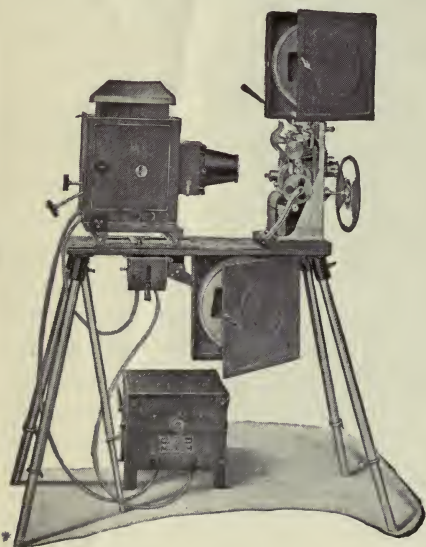
Don't Spoil the Reels

In establishing and maintaining a successful picture theatre, too much emphasis cannot be laid upon the projecting machine. You may have the finest possible location and the best reels on the market, but if your machine does not project steadily and clearly, you are bound to fail. There must be no nerve-racking flickers and no long waits for repairs. Picture fans know what kind of service they are entitled to expect, and if they cannot get it at your theatre they will get it in some other.

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THOMAS A. EDISON, Inc., 281 Lakeside Ave., Orange, N. J.

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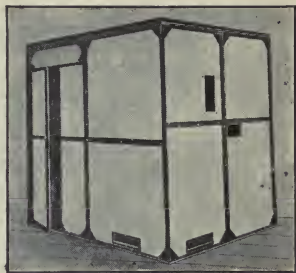
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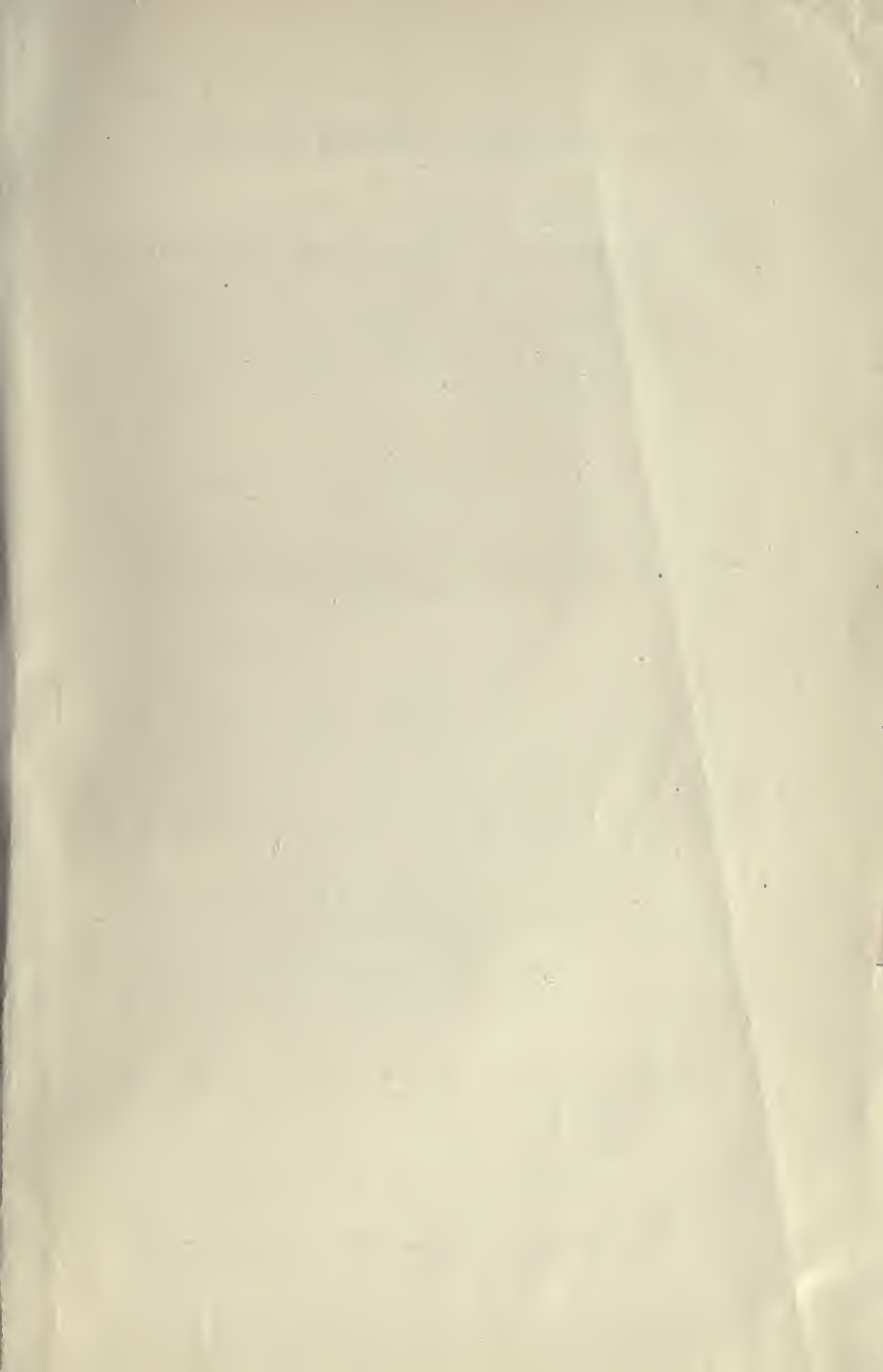
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READ THIS CAREFULLY.

If you are interested in engaging in the moving picture theatre business, and will fill in the blanks below and mail to me at 1465 Broadway, New York, it will very likely result to your advantage, as I will probably be able to put you in touch with the information you desire.

I have a number of theatres throughout the United States listed for sale.

JAMES F. HODGES.

Do you desire an established theatre?.....

Do you desire to open a new theatre?.....

Approximate amount of investment considered for same
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Should the personal ownership and operation of a moving picture theatre not appeal to you, let me tell you how to join in with several men of repute and put money in a reputable syndicate to operate a number of first class picture theatres in various sections of the country, and share in the earnings of this fruitful industry without the risk and bother of going it alone.

State below approximately the amount you might be inclined to invest in such a plan properly inaugurated.

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